Editor's note. The greatest threats to life on earth include the precipitate ‘development’ of India and China. As in other big ‘developing’ countries such as Indonesia, Brazil, Pakistan and Nigeria, the government of India is committed to ‘development’, measured as increased industrialisation and use of money and therefore rising gross national products. This process is obviously unsustainable. It involves privatisation of public goods, erosion of public health, and increased damage to air, water and land. It also means immiseration of hundreds of millions of farming families who struggle to protect their land and environment, who need little money, and when they are able to do so, produce healthy food. They, not corporations, are a model for a world system that can really be sustainable.
Brooke Aksnes writes:

Shruti Ravindran and Manipadma Jena are Indian writers committed to the cause of health and well-being of humans and of the living and physical environment. Both have a special interest in traditional culture and ways of life and in agroecology. This is in the Indian tradition exemplified by Mohandas Gandhi, who is still seen as the father and the soul of India founded as an independent republic.

Land wars in India

Here they report on a continuous social, economic and political fight in India which has global implications. On one side are the titanic forces of transnational capital, and national conglomerates such as the Tata group, backed by the current corporate-friendly national government of the Bharatiya Janata (BJP) party and current prime minister Narendra Modi. On the other side are social movements representing the interests of India’s hands-on small-scale family and community farmers, made up of about half of India’s 500 million workforce – they are also voters – and political parties that remain committed to democratic socialism. In 2015 the fight became more intense. As explained in Bloomberg Business in April:

Modi has proposed changes to the law which will make it easier for companies to buy land. If it passes, the changes would speed up development in rural infrastructure like roads and electric power… It also helps India build up its defense industry, too. India’s small family farmers are wary about the bill, fearing that their backyards might have a Tata coal-fired power plant breathing down their necks in the future. Or, they might be bought out on the cheap and not know where to go from there.

The BJP government was determined to make these proposals into new law, to accelerate industrial development. Their stance provoked demonstrations and riots throughout India. In April, as reported by Shruti Ravindran, these became symbolised by the public suicide of a Rajasthani farmer during a mass rally in New Delhi. But later last year, in August, the government made a U-turn. The changes in the laws on land acquisition, which were opposed by most of the opposition parties in the Indian parliament, would after all not be made. Acquisition of land for non-agricultural use would continue to require proper consultation and agreement with the farmers of the land. Again as reported in Bloomberg Business:

Modi said on Sunday he would implement rules to benefit farmers for 13 types of land transactions… These include [restrictions on] acquiring land for national highways, metro rails, atomic energy plants, mines, petroleum and mineral pipelines. ‘Brothers and sisters, you should neither be confused or frightened’ Modi said. ‘I don’t want to allow anyone to confuse or terrorize the farmer.’

Here below, Manipadma Jena reports on the struggle between the people in two districts of the eastern Indian state of Odisha (formerly Orissa). Her her own photographs show the precious value and the protection of the original and ancient food systems in the villages and surrounding forests of two indigenous populations, the Gunduribadi and the Dongria Kondh people. These indigenous populations
retain their reputations for militant protection of their homelands, their customs, and their rights. Their battles are often led – and sometimes won – by women. The stories told here are an inspiration for every community anywhere in the world, urban as well as rural, whose members are determined to protect their inherited and chosen ways of life.

**Global implications**

Transformation of the food systems and supplies of any large or highly populated country is a big issue for all those concerned personally or professionally concerned with public health and nutrition, nationally and internationally. As well as this, the land wars in India, which continue, have a broader significance.

2015 was the UN Food and Agriculture Organization’s *Year of Soils*. 2016 is the first year of the UN 2016-2030 Sustainable Development Goals. The aspirations implicit in these initiatives clash, everywhere in the world where ‘development’ means bigger megacities, new cities, more roads and automobiles, deeper penetration by transnational and other huge corporations whose first duty is to increase profits and share value, more mechanised agriculture and food systems, more consumer goods, and more ultra-processed food products. Such ‘development’ also involves pollution, contamination and degradation of air, water and soil, more injustice and inequity, more severe climate disruption, and the irreplaceable end of productive, rational rural economies and communities and authentic cultures. This is the context in which, as told here, Indian farmers are fighting for their rights.

Soil provides a base for landscapes, regulates water supplies, recycles organic and raw materials and provides a habitat for important soil organisms. When managed rationally, as it is by farmers who are able to take care, it also helps to maintain favourable weather and temperature conditions and food and water provision. But when soil is contaminated by industrial waste and chemicals, it carries agents of illness and malnutrition in livestock and in humans, and has many other ill-effects.

Indian farmers furiously insist that they have been betrayed by the current national government. They believe, with reason, that they are increasingly becoming victims of corporate interests and being driven into debt. They are seduced by empty promises of increasing production – by methods that degrade the environment and often do not deliver. When crops fail, farmers become crushed by debt.

**Soil, land, earth, planet**

Many governments now work with corporations to intensify industrialisation and to increase production of all types of consumer products – including food. Enacted, these policies undermine food security, degrade soils and ecosystems, and threaten human health and local economies. Certainly, land needs to be productive. This is however often done best by traditional land management. For example, in Gundurbadi rainfall brings rich forest humus into the 28 hectares of farmland...
managed by 27 families. The result is soil so nutritionally dense that a single hectare produces 6,500 kilograms of rice without chemical intervention – three times the yield from farms built around unprotected forests.

This is not only a story about the vital issues of relative value of rural and city life, actual and potential. Nor is it mainly about the protection of ecosystems and the environment or insistence on human rights and food sovereignty, crucially important though these also are. Above all such considerations, the story told here illustrates the point that the dominant ideology of ‘development’, particularly in highly populated countries such as China and India, if put into practice, makes the UN vision of ‘sustainable development’ a fantasy. This concerns us all.

**A matter of life and death**

**Shruti Ravindran reports:**

Last April, in front of cameras during a mass demonstration in New Delhi last April, Gajendra Singh, a farmer from Rajasthan, hung himself with his shawl from a tall neem tree. The picture below was taken moments before his suicide. Of all those in the great crowd of farmers protesting against business-friendly changes in laws on land ownership then being pushed at the time in the Indian parliament by the national government, his action was the most effective. By his death the reasons for
his despair, shared by more than a quarter of a billion farmers and their families throughout India, were publicised in the country and became a hot political issue.

The proposed land acquisition bill aimed to streamline the process of property procurement, in order to accelerate industrial development. This would come at the cost of the country’s poorest and most vulnerable – its forest-dwelling tribes and farmers, who do not generate much cash and so make only a small contribution to gross national product, slowing down India’s ‘development’. The bill, said economists and rights campaigners, would do away with hard-won protections that require the consent of those who would be affected by the loss of land, and would lift an exemption on the acquisition of productive, irrigated multi-crop land.

**Farmers’ suicides**

The current pro-‘market forces’ government could not have chosen a worse time to try to push through a bill that was obviously unfriendly to farmers. Farmers’ suicides have been an ongoing issue over the past two decades. Between 1997 and 2006, every seventh suicide in the country was a farm suicide. The situation worsened in 2015, after hailstorms and unseasonal rains destroyed crops across northern India. In the first three months of 2015, over 600 farmers committed suicide.

The proposed land bill – introduced as an ordinance in December 2014 – spread fear and unrest among farmers. They agitated against the bill across the country, from Karnataka in the south to Madhya Pradesh in the north. Campaigners against the bill, such as the human rights lawyer Usha Ramanathan and activist Devinder

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2015. Farmers all over India have demonstrated against the government’s proposed Land Acquisition Bill. More than half of India’s population depends on agriculture, but this contributes only one-seventh of gross national product.
Singer say that if implemented, it would drive farmers into deeper distress and destitution, and endanger food security.

Usha Ramanathan was particularly concerned about the potential elimination of the need of the consent of communities affected by the loss of land, and the proposed removal of a provision to return land that remains unused or uncompensated after five years. He explained:

We’re devaluing our primary producers without a thought to food security, natural self-reliance, or their own person. We’re losing not just farming land, but a whole generation of farmers.

There’s no question that Indian farming is in crisis, and that most of India’s 250 million farmers and farm workers struggle to sustain themselves and their families. A 2013 nationwide survey of agricultural households found that farming provided barely 60% of their average monthly income. Among other impediments, farmers and researchers blame the lack of cheap, reliable credit and insurance, fluctuating market prices, and the absence of a social safety net for when the crop fails or when the returns are too low to cover basic subsistence needs.

Devinder Sharma, a trained agricultural scientist and long-time agricultural reporter, says farmers’ incomes have barely kept pace with inflation in the past five decades. He blames the woefully inadequate ‘minimum-support price’, a guaranteed rate at which the state purchases produce. He says:

In 1970, the minimum-support price for wheat was Rs 76 per quintal. Today, it is Rs 1450 per quintal; an increase of 19 times. In the same time, the salaries of government employees have increased 130 times, those of teachers have increased 200-320 times, and the price of medicines has increased 350 times. How do we expect farmers to survive?

Vasant Futane, an organic farmer who lives in Maharashtra’s Amravati district where farmer suicide rates are among the highest in India, says farmers reel under social, agricultural, governmental, and climate pressures. What makes them most vulnerable is lack of sound advice from the government, leaving most farmers to the mercy of local businessmen and traders representing the interests of big agribusinesses:

They force them to go away from farming which is based on soil, size of land holding, access to irrigation, and their own needs, and give them a one-size-fits-all industrial farming ‘package’: high-yielding seeds for cash crops like cotton, and expensive pesticides and fertilisers. They buy all this on credit, and when their crops fail, they’re trapped.

His assessment chimes in with a 2014 study of farmers’ suicides, which concluded that those at highest risk cultivated cash crops destined to be sold, not eaten, like coffee, rubber, cotton, and sugarcane with tiny land holdings and who were, in the judgement of economist Maitreesh Ghatak, also likely to get hardest hit by the sort of forced land acquisition that the new land bill is proposing. He says:
For poorer farmers, land is their insurance option, credit line, old age pension; the only asset they have. Land is a huge part of the self-image of farmers I’ve met in the course of my fieldwork in West Bengal and Karnataka, so selling their land and joining the workforce would be socially the last straw.

**The worst of both ideologies**

Maitreesh Ghatak believes that Indian agriculture currently combines ‘the worst of capitalism and the worst of socialism’. Fixing it would need more public investment in rural infrastructure, ensuring the social safety net supports those who need it, and providing better market access to farmers. Until then, he says, Indian agriculture will continue to be ‘a densely populated building about to collapse’ and farmers, ‘like the small, poor tenant family trapped inside. If the land bill goes through, poor tenant families would find themselves out on the street, adds social scientist Reetika Khera:

They’d be without the only form of economic security they have. The landless are much more vulnerable to economic exploitation in the labour market, and food insecurity.

Without their fields, their homes, and their food, most of them are likely to land up in construction sites – perhaps where their fields once were.

**The women who guard the forests**

*Women from the Gunduribadi tribal village in the eastern Indian state of Odisha (former Orissa) patrol their forests with sticks to prevent illegal logging. Strong efforts like theirs have restored forest fertility and saved an ecosystem*
Manipadma Jena reports:

Unfolding out of sight and out of mind of India’s policy-making nucleus in the capital of New Delhi, this quiet drama – involving the 275 million people who reside in or on the fringes of the country’s bountiful forests – could be the defining struggle of the century. In the Nayagarh district of the eastern Indian state of Odisha (formerly Orissa) Kama Pradhan, a 35-year-old tribal woman, has been working with her fellow residents to map the boundaries of a 200-hectare forest that the community claims as their customary land.

Heavy stone markers, laid down by the British 150 years ago, demarcate the outer perimeter of an area claimed by the Raj as a state-owned forest reserve, ignoring at the time the presence of millions of forest dwellers, who had lived off this land for centuries. It will take days of scrambling through hilly terrain with government-issued maps and rudimentary GPS systems to find all the markers and determine the exact extent of the woodland area, but Kama Pradhan is determined. ‘No one can cheat us of even one metre of our mother, the forest. She has given us life and we have given our lives for her,’ says the indigenous woman, her voice shaking with emotion.

A movement of tribal communities has come to fruition. Tribes in states like Odisha are determined to make full use of a 2012 amendment to India’s Forest Rights Act to claim titles to their land, on which they can carve out a simple life, and a sustainable future for their children One of the most empowering provisions of the amended Act gives forest dwellers and tribal communities the right to own, manage and sell non-timber forest products, which some 100 million landless people in India depend on for income, medicine and housing.

Women like Kama Pradhan have emerged as the natural leaders of efforts to implement these legal amendments. They have traditionally managed forestlands, sustainably sourcing food, fuel and fodder for the landless poor, as well as gathering farm-fencing materials, medicinal plants and wood to build their thatched-roof homes. Under the leadership of these women, a total of 850 villages in the Nayagarh district of Odisha state are collectively managing 100,000 hectares of forest land, resulting in over a half of the district’s land mass now with forest cover. This is more than double India’s national average of one-fifth forest cover. Overall, 15,000 villages in India, primarily in the eastern states, protect around two million hectares of forests.

When life depends on land

According to the latest forest survey of India, the country’s forest cover increased by 5,871 square kilometres between 2010 and 2012, bringing total forest cover to 697,898 square kilometres (about 69 million hectares). Still, every single day, it is reckoned that 135 hectares of forestland are on average handed over to development projects like mining and power generation.
Tribal communities in Odisha are no strangers to large-scale development projects that guzzle land. Forty years of illegal logging across the state’s heartland forest belt, coupled with a major commercial timber trade in teak, sal and bamboo, left the hilltops bald and barren. Streams that had once irrigated small plots of farmland began to run dry, while groundwater sources gradually disappeared.

Over a 40-year period, between 1965 and 2004, Odisha experienced recurring and chronic droughts, including three consecutive dry spells from 1965-1967. As a result of the heavy felling of trees for the timber trade, Nayargh suffered six droughts in a 10-year span, which shattered a network of farm- and forest-based livelihoods. Nearly half of the population fled in search of alternatives. Arjun Pradhan, 70 year-old head of the Gunduribadi village, recalls:

We who stayed back had to sell our family’s brass utensils to get cash to buy rice, and so acute was the scarcity of wood that sometimes the dead were kept waiting while we went from house to house begging for logs for the funeral pyre.

**Direct action to protect the forests**

As the crisis escalated, a village council in Nayagarh devised a campaign which is now the model for community forestry in all Odisha. The council allocated need-based rights to families wishing to gather fuel, fodder or food from trees. Anyone wishing to fell a tree for a funeral pyre or house repairs had to seek special permission.
Carrying axes into the forest was prohibited. The village council imposed strict yet logical penalties on those who failed to comply. Villagers took turns to patrol the forest using the *thengapali* system, literally translated as ‘stick rotation’: each night, representatives from four families would carry stout, carved sticks into the forest. At the end of their shift, the scouts placed the sticks on their neighbours’ verandahs, indicating a change of guard. Anyone caught stealing had to pay a cash fine corresponding to the thief. Skipping a turn at patrol duty resulted in an extra night of standing guard.

As the forests slowly regenerated, the villagers made additional sacrifices. Goats, considered quick-cash assets in hard times, were sold off and banned for 10 years to protect the fresh green shoots on the forest floor. Instead of cooking twice a day, families prepared both meals on a single fire to save wood.

**Keeping water clean**

Some 20 years after this ‘pilot’ project was implemented, villagers can see a hill stream that gurgles past on the outskirts of Gunduribadi, irrigating small farms of ready-to-harvest lentils and vegetables. Clean water simmers four feet below the ground in a newly dug well under a shady tree; in the evenings, elderly women haul bucketfuls out with ease.

Manas Pradhan, who heads the local forest protection committee, explains that rains bring rich forest humus into the 28 hectares of farmland managed by 27 families. This results in soil so rich a single hectare produces 6,500 kilograms of rice without chemical boosters – three times the yield from farms around unprotected forests.

*With an eighth-grade education, Nibasini Pradhan is the most literate person in Gunduribadi village. She operates a government-supplied GPS device to help the community map out and define the boundaries of their customary land.*
Janha Pradhan, a landless tribal woman, explains:

When potato was scarce and selling at an unaffordable 40 rupees (65 cents) per kilogram, we substituted it with *pichuli*, a sweet tuber available plentifully in the forests. We made good money selling some in the town when potato prices skyrocketed a few months back.

In a state where the average earnings are 40 dollars per month and hunger and malnutrition affects one-third of the population – with one in two children underweight – this community represents an oasis of health and sustenance in a desert of poverty. At least four wild varieties of edible leafy greens, vine-growing vegetables like spine gourd and bamboo shoots, and mushrooms of all sizes are gathered seasonally. Leaves that stem bleeding, and roots that control diarrhoea, are also sustainably harvested from the forest.

**What they have, they hold**

The tranquillity that surrounds this forest-edge community belies a conflicted past. Eighty-year-old Dami Nayak, former president of the forest protection committee for Kodallapalli village, explains that her ancestors used to grow rain-fed millet and vegetables for generations in and around these forests, until the Odisha State Cashew Development Corporation set its sights on their lands over 20 years ago. Although not a traditional crop in Odisha, the state corporation set up cashew orchards on tribal communities’ hill-sloping farming land in 22 of the state’s 30 districts.

When commercial operations began, landless farmers were promised an equal stake in the trade. But as Dami Nayak recounts:

When the fruits came, they not only auctioned the plantations to outsiders, but officials also told us we were stealing the cashews – not even our goats could enter the orchards to graze. Overnight we became illegal intruders in the forestland that we had lived in, depended on and protected for decades.

With over 4,000 trees – each generating between eight and ten kilograms of raw cashew, which sells for roughly 0.85 dollars per kilogram – the government was making roughly 34,000 dollars a year from the 20-hectare plantation; but none of these profits trickled back down to the community. Furthermore, the state corporation began leasing whole cashew plantations out to private bidders, who also kept the profits for themselves. Following the amendment to the Forest Rights Act in 2012, women in the community decided to mobilise. Nayak explains:

When the *babus* [officials] who had secured the auction bid arrived, we did not let them enter. They called the police. Our men hid in the jungles because they would be beaten and jailed but all they could do was threaten us women. Later we nailed a board to a tree at the village entrance road warning anyone trespassing on our community forest that they would face dire legal consequences.

Once, the women even faced off against the police, refusing to back down. In the three years following this incident, not a single bidder has approached the community. Instead, the women pluck and sell the cashews to traders who come...
directly to their doorsteps. Although they earn only 1,660 dollars a year for 25,000 kilograms – about 0.60 dollars per kilogram, far below the market value – they divide the proceeds among themselves and even manage to put some away into a community bank for times of illness or scarcity. Forty year-old Pramila Majhi, head of one of the women’s protection groups that guards the cashew orchards, recounts:

Corporations’ officials now come to negotiate. From requesting 50 percent of the profit from the cashew harvest if we allow them to auction, they have come down to requesting 10 percent of the income. We told them they would not even get one rupee – the land is for community use.

This hard-won victory has given hope to scores of other villages battling unsustainable development models. Between 2000 and 2014, more than 25,000 hectares of forests in Odisha have been diverted for ‘non-forest use’, primarily for mining or other industrial activity. In a state where 75 percent of the tribal population lives below the poverty line, the loss of forests is a matter of life and death. According to the ministry of tribal affairs, the average earnings of a rural or landless sometimes amount to nothing more than 13 dollars a month. With two-fifths of Odisha’s women thin to the point of being classifiable as wasted, and three-fifths measurable as anaemic, the forests provide much-needed nutrition to people living in abject poverty.

Rather than ride a wave of destructive development, tribal women are charting the way to a sustainable future, along a path that begins and ends amongst the trees in the quiet of Odisha’s forests.

_A major reason for the tribe’s opposition to mining in the Niyamgiri mountains was that it would contaminate and destroy their numerous perennial hill streams.

Here, a tribal girl washes at a pipe that gushes fresh water 24 hours a day._
How to manage the food-forest nexus

Date palm trees abound in the Niyamgiri hills in Odisha. The fruits contain antioxidants and vitamin A, essential to a tribal people battling widespread malnutrition, and the sap is collected and fermented to produce ceremonial liquor.

Manipadma Jena reports:

Scattered across 240 sq kilometres on the remote Niyamgiri hill range in Odisha, an ancient tribal group known as the Dongria Kondh have earned themselves a reputation as trailblazers. Having fought – and won – a decade-long battle with a British mining giant that invested close to a billion dollars in a bauxite extraction operation in this mineral-rich area, the Dongria Kondh set an example in 2013 to millions of tribal people around the world that David versus Goliath-style confrontations can still be won. Now, the indigenous group is once again at the forefront of a global problem – the twin issues of hunger and deforestation – as they continue to nurture an ancient way of life despite a wave of destructive development that is threatening their traditional and sustainable farming practices.

Numbering some 10,000 people, the Dongria Kondh believe the forests and hills to be sacred sites, and have for centuries lived in harmony with the land, with single families harvesting an average of 130 kilograms of wild produce in a single year. Their varied and nutritious diet, which includes over 25 species of plants, comes directly from the forests, while springs originating in the Niyamgiri hills provide fresh, clean water all year round.

But rampant deforestation for large-scale infrastructure projects, coupled with monoculture plantations of fast-growing trees to supply timber and paper industries with raw materials, as well as mining activities, have reduced food availability for the
Dongria Kondh and other indigenous groups by over 30 percent and increased their gathering time by 80 percent over the last 30 years. Today, over half of all adults from the Dongria Kondh community are reckoned to be protein-energy deficient and three-fifths of school-aged children are identifiable as malnourished.

**The need to preserve forests**

This situation reflects a trend all across India, where some of the poorest and hungriest live in or around forests. India is currently home to one-quarter of the 805 million malnourished people worldwide, as well as to a third of the world’s underweight children and nearly a third of all food-insecure people – most of them among the 275 million-strong forest-dwelling population of this vast country.

The irony of the fact that those living closest to readily available food sources are going hungry has not escaped the attention of policy-makers. The United Nations is spearheading efforts to protect forests due to their critical importance in alleviating hunger and mitigating the impacts of climate change, not just in India but worldwide. Worldwide 1.6 billion people – including over 2,000 indigenous cultures – depend directly on forests for food, shelter, income and fuel. Preserving these areas feeds directly into the U.N.’s sustainable development agenda, and could also play a role in the ‘Zero Hunger Challenge’, launched by Secretary-General Ban Ki-moon in 2012 in a bid to completely eradicate the scourge of malnutrition and food insecurity.

This is easier said than done, given that an estimated 13 million hectares of forests are destroyed annually, denying hundreds of thousands of people their main source of food. While this seems like a bleak trend, one need only look up at the Niyamgiri

![Image](image_url)

*Honey is the Dongria Kondh’s most precious forest product, valued for its nutrition, medicinal properties and high returns from sale. The tribe manages and protects large sections of the Niyamgiri hills, so hundreds of wild honeybee colonies can still be found.*
Women are responsible for most forest produce collection. A typical day's haul includes tamarind, which fetches a large part of a household's annual income, and wild yams, a dietary mainstay during the lean months of August to October.

hills for a lesson on an alternative economic model – one based on community management and control of land and resources, rather than the rampant destruction of living ecosystems for profit. In Odisha, the forest-food nexus meets the accumulated traditional knowledge of an ancient people, pointing the way to a horizon where hunger is a thing of the past, not the future.